

# The Longevity of an Optimal Treatment to a Mathematical Model of Swimmer's Itch

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Swimmers itch is caused by flatworm parasites that use water birds as definitive hosts and snails as intermediate hosts. When parasite larvae enter human skin, it causes inflammation and intense discomfort. Due to its increasing frequency and impact on humans, swimmers itch is recognized as a neglected emerging disease. In a recent mathematical model, optimal control theory is applied to determine when treatment should be given to birds during their summer residency period. We investigate the question: If an optimal treatment is given in year one, then when should the next treatment be given? Preliminary results will be shared.